EXECUTIVE ORDER U-R-004-0535 New Off-Road

New Off-Road Compression-Ignition Engines Page 1 of 2

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)			
2017	HJDXL06.8302	4.5, 6.8	Diesel	8000			
	FEATURES & EMISSION		TYPICAL EQUIPMENT APPLICATION				
Injection Recircula	r Cooler, Oxidation Cata n, Electronic Control Mo ation, Periodic Trap Oxic Catalytic Reduction-Urea Catalyst	dule, Exhaust Gas lizer. Turbocharger.	Crane, Tractor, Loaders, Dozer, Pump, Compressor, Generator Set, Other Industrial Equipment				

The engine models and codes are attached.

The following are the exhaust certification standards (STD), or family emission limit(s) (FEL) as applicable, and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED	EMISSION STANDARD CATEGORY			E	XHAUST (g/kw-l	OPACITY (%)				
POWER CLASS			имнс	NOx	NMHC+NOx	со	PM	ACCEL	LUG	PEAK
75 ≤ kW ≤ 560	Tier 4 Final	OPTIONAL STD	0.19	0.40	N/A	3.5	0.02	N/A	N/A	N/A
		FEL					0.01			
		CERT	0.03	0.16		0.03	0.003			

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has complied with the more stringent set of standards from the various power categories in conformance with Section 1039.230 (e) of the "California Exhaust Emission Standards and Test Procedures for New 2011 and Later Tier 4 Off-Road Compression Ignition Engines, Part I-D" adopted October 20, 2005 and last amended October 25, 2012.

BE IT FURTHER RESOLVED: That the family emission limit(s) (FEL) is an emission level declared by the manufacturer for use in any averaging, banking and trading program and in lieu of an emission standard for certification. It serves as the applicable emission standard for determining compliance of any engine within this engine family under 13 CCR Sections 2423 and 2427.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

BE IT FURTHER RESOLVED: That the manufacturer has elected to include engine models in this engine family which are identified for "emergency vehicle use only". These "emergency vehicle use only" engines are exempt from requirements imposed pursuant to California law and the regulations adopted pursuant thereto for motor vehicle pollution control devices per California Vehicle Code Section 27156.2. The manufacturer must clearly label these engines for "emergency vehicle use only" on the engines' emission control label.

JOHN DEERE POWER SYSTEMS

EXECUTIVE ORDER U-R-004-0535 New Off-Road Compression-Ignition Engines Page 2 of 2

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted family that are produced for any oth			
Executed at El Monte, California on thi	s3 <u>isd</u>	_ day of January 2017.	•
	Annette Heber Emissions Cor	Mve- t, Chief npliance, Automotive Re	gulations and Science Division

Fo#: U-R-004-0535 Attachment: Page 10f2 4/14/2017

Engine Model Summary Form

Manufacturer: Engine category: John Deere Power Systems

EPA Engine Family: HJDXL06.8302

Mfr Family Name:

350HCA

Running Change Process Code:

, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ramming enames	***	4. Fuel Rate:	5. Fuel Rate:	6. Torque (Nm)	7. Fuel Rate:		9, Emission Control
		kW@RPM	mm/stroke@peak kW	(kg/hr)@peak kW	@RPM	mm/stroke@peak	8. Fuel Rate:	Device Per
1. Engine code	2. Engine Model	(SAE Gross)	(for diesel only)	(for diesels only)	(SEA Gross)	torque	(kW/hr)@peak torque	SAE J1930
4045HDW59	4045	/129@2200	127.3@2200	28.6@2200	728@1500	158.1@1500 🙏	24.2@1500	EGR, ECM PTOX OC SCRO NH300 DFI TO CAC
4045HFC07A	4045	93@2400	88.1@2400	21.6@2400	494@1500	104.3@1500	15.9@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4045HFC07B	4045	104@2400	98.9@2400	24.2@2400	640@1500	116.8@1500		EGR ECM PTOX OG SCRG NH3OC DELTC CAG
4045HFC09A	4045	129@2400	119.7@2400	29.3@2400	667@1500	139,6@1500	21,4@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4045HFC09AA	4045	93@2200	94.9@2200	21.3@2200	3537@1500	113 4@1500	, 3,17,3@1500	EGR ECM PTOX OC SCRC NH3OC DELTS CAC
4045HFC09AB	4045	93@2200	94.9@2200	21.3@2200	537@1500	113.4@1500	17.3@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4045HFC09B	4045	129@2200	126.3@2200	28.3@2200	667@1500	139.6@1500	21.4@1500	EGR/ECM/PTOX/OC/SCRC/NH30C/DF/TC/GAC/
4045HFC09C	4045	116@2400	108,6@2400	26.6@2400	616@1500	128.5@1500	19.6@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4045HFC09D	1 14/4046	116@2400	-108.6@2400	26.6@2400	616@1500	128.5@1500	19.6@1500	EGR ECM PTOX OC SCRC NH3OC DFI TO CAC
4045HFC09E	4045 4045	116@2200 116@2200	114.3@2200	25.6@2200 25.6@2200	667@1500	140.8@1500	21.5@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4045HFC09F	CONTRACTOR OF THE CONTRACTOR AND THE CONTRACTOR	a Latinative and the contractive	with a few to the company of the contract of t	STREET TREETS AND STREET STREET	667@1500	140.8@1500	21,5@1500	FOR FOM PTOX OC SCRC NH3OC DFI TC CAC
4045HFC09G 4045HFC09H	4045 4045	104@2400	99,1@2400	24.3@2400 124.3@2400	552@1500	114.9@1500	17.6@1500	EGR ECM PTOX OC SCRC NH3OC DFITC CAC
4045HFC09H	4045 4045	104@2400 104@2200	99.1@2400	SOUTH SECURITIES AND ASSESSMENT OF THE WOLLD	552@1500	114.9@1500	17.6@1500	EGR ECM PTOX OC SCRC NH3OC DFITTO CAC
4045HFC09J	4045 4045 k	104@2200	102.7@2200 102.7@2200	23@2200 23@2200	601@1500 601@1500	124.8@1500 124.8@1500	19.1@1500 19.1@1500	EGRECM PTOX OC SCRC NH3OC DFITC CAC
4045HFC095	4045	93@2400	90.3@2400	22.1@2400	494@1500	103@1500	15.8@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4045HFC09L	4045	93@2400	90.3@2400	22 (@2400	494@1500	103@1500		EGREOM PTOX OG SORO NH3OC DELTO CAC
4045HFC09M	4045	93@2200	93.2@2200	20,9@2200	537@1500	111.6@1500	17.1@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4045HFC09N	4045	93@2200	93.2@2200	20,9@2200	537@1500	111.6@1500		EGR ECM PTOX OC SCRONHSOC DELTO CAC
4045HFC09O	4045	129@2400	122,3@2400	29.9@2400	667@1500	142.2@1500	21.7@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4045HFG09P	40454.74	129@2200	128@2200	28.7@2200	667@1500		21.9@1500	EGRECM PTOX OC SCRONH3CC DFLTC CAC
4045HFC09Q	4045	116@2400	110.3@2400	27@2400	616@1500	130,3@1500	19.9@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4045HFC09R	4045	116@2400	110.3@2400	27@2400	616@1500	130.3@1500	19.9@1500	EGR ECM PTOX OC SCRC NH3OC DELTC CAC
4045HFC09S	4045	116@2200	115.3@2200	25.4@2200	667@1500	141.7@1500	21.7@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4045HFC09T	4045	116@2200		25.4@2200	667@1500	141.7@1500		EGRECM PTOX OG SCRO NH300 DELTO CAO
4045HFC09U	4045	104@2400	100.9@2400	24.7@2400	552@1500	116.4@1500	17.8@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4045HFC09V	4045	104@2400	100.9@2400	24.7@2400	552@1500	116,4@1500	17.8@1500	FEGRECM PTOX OC SCRC NH3OC DELTC CAC
4045HFC09W	4045	104@2200	103.7@2200	23,3@2200	601@1500	126,5@1500	19.3@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4045HFC09X	4045	104@2200	103.7@2200	23.3@2200	601@1500	126,5@1500	19.3@1500	EGRECKIPTOX OC SCRC NH3OC DFLTC CAC
4045HFC09Y	4045	93@2400	92.3@2400	22,6@2400	494@1500	103.7@1500	15,9@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4045HFC09Z	4045	93@2400	92.3@2400	422.6@2400	494@1500	103.7@1500	15.9@1500	EGRECM PTOX OC SCRC NH3OC DFI TC GAC
4045HFG09A	4045	124@1800	143.8@1800	26,4@1800				EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4046HFG09B	4045	105@1800	. 121.5@1800	22.3@1800				EGR ECM PTOX OC SCRC NH3OC DFI TO CAG
4045HL503	4045	129@2100	132.4@2100	28.3@2100	730@1575	156,3@1575	25.1@1575	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4045HL504	4045	129@2100	132.4@2100	28.3@2100	730@1575	156,3@1575	25.1@1575	EGRECM PTOX OC SCRO, NH3OC DELTC CAC
* *4045HLC07B	4045	100@2400	95,8@2400	23,4@2400	555@1500	122.9@1500	20@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
*4045HLC09A	4045	120@2400	112.1@2400	27.4@2400	697@1500	147,2@1500	, 22.5@1500	EGR ECM PTOX OC SCRC NH3OC DFLTC CAC
*4045HLC09B	4045	112@2400	107.7@2400	26,4@2400	645@1500	136.8@1500	20.9@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4045HN052	4045	136@2400	129,3@2400	31,6@2400	730@1500	156@1500	23.9@1500	EGRECM PTOX OC SCRC NH3OC DELTC CAC
*4045HP076	4045	104@2200	103.9@2200	23.3@2200	555@1500	119.6@1500	18.3@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4045HRT09A	4045	117@2200	117.3@2200	26.3@2200	660@1500	138,4@1500	21.2@1500	EGR EGM PTOX OC SCRC NH3OC DFI TC CAC
4045HRT09B	4045	106@2200	108.2@2200	24.3@2200	612@1500	127.7@1500	19.5@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4045HRT09C	4045	91@2200	92,5@2200	20.7@2200	562@1500	120@1500	18/3@1500 11	EGR ECM PTOX OC SCRC NHSOC DELTC GAC
4045HT084	4045	129@2200	128.9@2200	28.9@2200	730@1575	156,9@1575	25,2@1575	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC

* New ratings added for running . Change

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			4. Fuel Rate:	5. Fuel Rate:	6. Torque (Nm)	7. Fuel Rate:		9. Emission Control
		3. kW@RPM	mm/stroke@peak kW	(kg/hr)@peak kW	@RPM	mm/stroke@peak	8. Fuel Rate:	Device Per
1. Engine code	2. Engine Model	(SAE Gross)	(for diesel only)	(for diesels only)	(SEA Gross)	torque	(kW/hr)@peak torque	SAE J1930
4045HT091,2	4045				555@1500	119.6@1500	18.3@1500	EGR EGM PTOX OC SCRONHSOC DENTO CAC
4045HT092	4045	104@2200	103.9@2200	23,3@2200	555@1500	119.6@1500	18.3@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
4045HT093	4045	103@2000	110@2000	22.4@2000			18.2@1500	EGRECM PTOX OF SCRONHSOC DELTS CAC
4045HT094	4045	129@2200	127.3@2200	28.6@2200	728@1500	158.1@1500	24.2@1500	EGR ECM PTOX OC SCRC NH3OC DFITC CAC
4045HT098	4045	Gent foreign portrograms some men	103.9@2200		555@1500	119.6@1500		EGR ECM PTOX OC SORC NH306 DELTC CAC
4045HT099	4045	104@2200	103.9@2200	23.3@2200	555@1500	119,6@1500	18.3@1500	EGR ECM PTOX OC SCRC NH3OC DFITC CAC
CONTRACTOR STATE OF THE STATE O	6068 15	129@2200	85@2200	28.6@2200	768@1600	111.1@1600	* 27.2@1600 · · ·	EGRECM PTOXOCISCRO NH3OC DELTO CACIL
6068HL504	6068	156@2100	104.6@2100	33.6@2100	842@1600	121,5@1600	29.7@1600	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
6068HPRNT6		236@2400	136,5@2400	50.1@2400	1309@1600	187.4@1600	71°45.8@1600	EGR ECM PTOXOC SCRENHBOO DELTE CAC
6068HRT08A	6068	139@2200	92.8@2200	31.2@2200	833@1500	123.5@1500	28.3@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
6068HRT08B		128@2200	84.9@2200	28.9@2200	745@1500	120.3@1500	25.1@1500	EGRECM PTOX OC SCRO NESOC DELTE CAC
6068HRT08C	6068	115@2200	76.3@2200	25.7@2200	703@1500	102,8@1500	23.6@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
6068HRT08D		102@2200	68.5@2200	23,7@2200	640@1500 - 640@1500		21.3@1500	EGRECM PTOX OCISERE NH300 DFITE CAC
6068HRT08E	6068	139@2200	91.1@2200	30,6@2200	833@1500	120,3@1500	27.6@1500	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
6068HT102	6068	163@2000	112.7@2000	34.5@2000	842@1600	119.7@1600	29.3@1600	EGR ECM PTOX OF SERO NH3OC DELTE CAC
6068HT117	6068	190@2100		39.3@2100	1000@1600	140.4@1600	34.3@1600	EGR ECM PTOX OC SCRC NH3OC DFITC CAC
6068HT123	6068	190@2100	122.3@2100 122.3@2100		1000@1600	140.4@1600	34.3@1600	EGR ECM PTOXOC SCRONHSOC DELTO CAC
 C. C. S. and M. C. C.							2.20 C.	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
6068HT126 6068HT127	6068 6068	163@2000 129@2100	112.7@2000 89.7@2100	34.5@2000 28.8@2100	842@1600 768@1600	119.7@1600	29.3@1600 28.2@1600	EGREEM PTOX OC SCRONH3OC DE TO CAC
						115.4@1600		TO A TANDA THE PROPERTY OF THE
6068HT128	6068	129@2100	89.7@2100	28.8@2100	768@1600	115,4@1600 //19,7@1600	28.2@1600 29.3@1600	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
+6068HTJ63	6068	163@2000	112.7@2000	34.5@2000	842@1600			EGRECM PTOX OC SCRC NH30G DELTIC CAC
6068RW442	6068	156@2100	104.6@2100	33.6@2100	842@1600	121,5@1600	29.7@1600	EGR ECM PTOX OC SCRC NH3OC DFI TC CAC
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